

ORIGINAL ARTICLE**Determining Dental Students' Awareness about Principles of Prescription Writing And Pharmacology Knowledge In Dental Treatment****Ehsan Talebzadeh^{1*}, Kamal Amini², Hasan Momeni³, Nasim Riahan⁴**

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Corresponding Author: Ehsan Talebzadeh, Email: Ehsantalebzadeh11@gmail.com*ABSTRACT**

Students' awareness about principles of prescription writing and pharmacology knowledge can enhance the quality of patients' treatment. The aim of this study was to evaluate dental students' awareness about principles of prescription writing and pharmacology knowledge in the treatments associated with dentistry. In this descriptive and cross-sectional analytical study, 152 questionnaires were completed by dental students of different faculties and then the data were analyzed using SPSS software and statistical tests. Based on the results obtained, the mean score of students' awareness about principles of prescription writing was obtained as (70.8%), the mean score of students' awareness about drug Interactions as (46.7%), the mean score of students' awareness about the drug association with disease as (49.5%), the mean score of students' awareness about drug adverse effect as (57.6%), and the general mean score of students' awareness as (54.8%). The results of this study showed that the students' awareness about principles of prescribing and pharmacology knowledge in dental treatment is at a medium level and requires that greater effort should be done in order to raise the level of students' knowledge.

Keywords: Prescription writing, Pharmacology, Dental treatment

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INTRODUCTION

Most doctors who recently completed their medical training, at the beginning of their practice realized that they do not have a very clear belief and attitude about how to write prescription for patients or provide necessary pharmaceutical information to them [1]. According to the World Health Organization a prescription should contain features such as patient details, medication type, pharmaceutical form, dosage, frequency of usage, duration of therapy, and medication guide [2]. The proper implementation of these items also must be considered, because the lack of attention to these and mistakes in prescriptions not only leads to consumption of the wrong drug, but it also can lead to ineffective or wrong treatment, risks and big medical expenses for patients [3].

Since prescribing is one of the routine process of dentists for treatment procedure, the lack of sufficient medical information and lack of education in students of this field is an important factor in treatment and it has a direct impact on the quality of drug treatment.

Raised levels of drug resistance is one the problems of lack of awareness and adequate training, which is considered as one the most important and essential global health problems of today. Indiscriminate and incorrect use of antibiotics is the main reasons for this problem [4]. Many studies have proven the link

between increased resistance to antibiotics with indiscriminate and incorrect use of drugs. [5, 6] Therefore, avoiding the wrong and indiscriminate use of antibiotics is essential in order to reduce the resistant to antibiotics. In fact, antibiotics should be used only for people and diseases fitted with their application [4].

In addition to these problems, in the case of arbitrary treatment with antibiotics, antibiotics are associated with side effects and undesirable reactions such as diarrhea and allergic reactions [7]. Information on the use of antibiotics shows that since 1997, daily doses of antibiotics have increased. On the other hand, prescription of broad-spectrum antibiotics at the same time has become increasingly more common, while dedicated antibiotics prescription has decreased and due to these matters and dangerous trends of increased drug resistance, more comprehensive supervision and training are needed [8]. Given the mentioned discussions, the purpose of this study is to investigate the problems of inadequate training and information of dental students in the field of prescribing drug and writing prescription.

MATERIALS AND METHODS

This study is a descriptive and cross-sectional analytical study and its method of data collection is field research, which was conducted in the years 1393-1394 at the School of Dentistry of Isfahan and Azad university of Isfahan and Kerman. The statistical population of the study include 152 senior year dental students of Isfahan and Kerman. The research variables include: dependent variable, knowledge score of students in the field of purposes of this study and independent variable, age, and gender.

The questionnaire also contains sixteen questions in four sections about students' awareness of principles of prescription writing, awareness of drug interactions, awareness of the association of drug and disease, and awareness of drug adverse effect and information about age, gender and entrance year of student. For conducting this study, first, the project was approved at the council meeting, then 152 questionnaires were distributed and collected among School of Dentistry of Isfahan and Azad university of Isfahan and Kerman and they were prepared to conduct statistical process and data analysis was performed. Data from questionnaires were enter into SPSS Ver.20 software and they were analyzed using statistical indexes such as the mean and standard deviation, frequency and T-Test, Spearman and Pearson statistical tests.

RESULTS

As mentioned, this study was conducted to evaluate dental students' awareness about principles of prescription writing and pharmacology knowledge in dental treatments and 65 men and 87 women participated in it, which their frequency are 42.8% and 57.2%, respectively. The average age of students of the study was 25.3 years and the most frequent age of students is 25 years. (Table 1).

Table 1. The frequency distribution and the average age of students

Age (years)	Number	Percent
24	46	30/3
25	59	38/8
26	21	13/8
27	17	11/2
28	9	5/9
Total	152	100
Average	25/3	
Standard deviation	1/7	

The most frequent students' awareness (44.1 %) on the principles of prescription writing is at a good level. The mean score of students' awareness about principles of prescription writing was obtained as 70.8 from total of 100. (Table 2).

Table 2. The frequency distribution and mean score of students' awareness about principles of prescription writing

Score of 100	Number	Percent
Weak (33-0)	43	28/3
Medium (66-34)	42	27/6
Good (100-67)	67	44/1
Total	152	100
Average	70/8	
Standard deviation	30/03	

The most frequent students' awareness (42.8%) about drug interactions is at an intermediate level. The mean score of students' awareness about drug interactions obtained as 46.7 from total of 100. (Table 3)

Table 3. The frequency distribution and mean score of students' awareness about drug interactions

Score of 100	Number	Percent
Weak (33-0)	49	32/2
Medium (66-34)	65	42/8
Good (100-67)	38	25
Total	152	100
Average	46/7	
Standard deviation	22/04	

Awareness of majority of students (67.1%) about drug association with the disease is at an intermediate level. The mean score of students' awareness about association of the drug with the disease obtained as 49.5 from total of 100. (Table 4)

Table 4. The frequency distribution and mean score of students' awareness about drug association with disease

Score of 100	Number	Percent
Weak (33-0)	26	17/1
Medium (66-34)	102	67/1
Good (100-67)	24	15/8
Total	152	100
Average	49/5	
Standard deviation	20/9	

The most frequent students' awareness (45.4%) about drug adverse effect is at a good level. The mean score of students' awareness about drug adverse effect obtained as 57.6 from total of 100. (Table 5)

Table 5. The frequency distribution and mean score of students' awareness about drug adverse effect

Score of 100	Number	Percent
Weak (33-0)	48	31/6
Medium (66-34)	35	23
Good (100-67)	69	45/4
Total	152	100
Average	57/6	
Standard deviation	30/2	

General awareness of majority of students (69.1%) is at an intermediate level. The overall mean score of students' awareness obtained as 54.8 from total of 100. (Table 6).

Table 6. The frequency distribution and general mean score of students' awareness

Score of 100	Number	Percent
Weak (33-0)	12	7/9
Medium (66-34)	105	69/1
Good (100-67)	35	23
Total	152	100
Average	54/8	
Standard deviation	14/6	

Independent T-Tests showed that mean score of male and female students' awareness about principles of prescription writing ($P=0.60$), drug interactions ($P=0.30$), drug association with disease ($P=0.51$) and total awareness ($P=0.99$) had no significant difference with each other. (Table 7)

Table 7. The mean score of awareness of students in the study in various aspects, disaggregated by gender

Dimensions of Consciousness	Men		women		P-Value
	Average	Standard deviation	Average	Standard deviation	
Principles prescription	72/3	29/8	69/7	30/3	0/60
Drug Interactions	48/8	21/8	45/1	22/2	0/30
Drug associated with disease	50/8	21/5	48/5	20/6	0/51
Side effects	52/7	29/7	61/2	30/2	0/08
General awareness	54/80	15/6	54/81	13/9	0/99

Pearson correlation coefficients showed that the age of students had no significant difference with their awareness about principles of prescription writing ($r=-0.034$, $P=0.67$), drug interactions ($r=0.024$, $P=0.77$), drug association with disease ($r=0.027$, $P=0.74$), drug adverse effect ($r=0.132$, $p=0.11$), and general awareness ($r=0.076$, $p=0.35$). (Table 8)

Table 8. Pearson correlation coefficients between age and awareness score of students from different aspects

Dimensions of Consciousness	Age	
	R	P-value
Principles prescription	-0/034	0/67
Drug Interactions	0/024	0/77
Drug associated with disease	0/027	0/74
Side effects	0/132	0/11
General awareness	0/076	0/35

DISCUSSION AND CONCLUSION

Understanding the pharmacology and principles of prescription writing is one of the most important factors for successful treatment in the dentistry, that there has been little attention to this in treatment. Drug recognition and understanding of the disease and drug adverse effect and drug association with the disease are important aspects that were investigated in this study. Most students do a well practical work, but when patient has pain and problem and they force to prescribe, they are not careful enough. This can be due to inadequate training or improper planning of educational group related to presentation of pharmacology courses or it can be due to negligence and lack of adequate knowledge of students or not paying attention to this subject.

In this study, by identifying the awareness score of senior year students which are on the verge of graduating and practicing and should be aware of all aspects of treatment and prescribing, we tried to offer suggestions in this regard by evaluating and identifying the problems.

The most prescribed cases are root canal therapy and surgery, which dentist faces with patient pain during and after the treatment and in most cases of root canal therapy, they are usually with lesion before treatment and prescribing antibiotics and analgesics in this cases is essential. Alongside this study, we mentioned the common drugs in this field, which the most prescribed antibiotics are Penicillin and Amoxicillin and in case of sensitivity to Penicillin, Erythromycin is replaced and effective non-narcotic analgesic include NSAIDs and Acetaminophen. From NSAIDs we can note Diclofenac and Ibuprofen, which are more common [9].

Based on the results of the study, students in terms of gender were (57.2) female and (42.8%) male, regarding the age, average age of students was 25.3 years and most frequent age of students was 25 years old. There was no significant relationship between mean score of students' awareness about principles of prescribing and age and gender.

Over the purposes of this study, which includes score of students' awareness about principles of prescription writing, drug interactions, drug association with disease and drug adverse effect, designed questionnaire was completed by senior dental students. Results obtained as below.

Regarding the score of students' awareness about principles of prescription writing, the highest frequency of students about awareness of principles of prescription writing is at a good level (44.1%) and the mean score of awareness about principles of prescribing obtained as (70.8%), which indicates that students of the study are at a good level regarding awareness about principles of prescription writing.

Regarding the score of students' awareness about drug interactions, the highest frequency of students (42.8%) is at a good level, the mean score of awareness about drug interactions obtained as (46.7%), which can be concluded that students in this case are at intermediate level and it is required that in the field of education more educational effort and from side of the students raising of knowledge should be done.

Regarding the score of students' awareness about drug association with disease, the highest frequency of students is (42.8%) and the mean score of students' awareness about drug interactions is (49.5%), which indicates that students in this case are at an intermediate level and more efforts should be done in this area.

Regarding the score of students' awareness about drug adverse effect is (45.4%) and the mean score of students' awareness about drug adverse effect is (57.6%), which is indication of good level of students' awareness. In this research, general score of students' awareness in this case is (54.8%), which most of students are at an intermediate level.

In a study by Mora *et al.* on awareness about principles of prescription writing and drug recognition, type, and the distribution, their study was consistent with present study.

In the study by Nezafati *et al.* [11] on identifying errors in prescription in the city of Tabriz, results of this study showed that 98% of prescription had errors in them, which greatest errors were about name of the drug or route of administration, interval of taking medication or drug dose, this study was consistent with first objectives of secondary objectives of this study.

In a study by Aronson [3] on examining whether the prescriptions are successful or not and he also examined the reason of prescribing an unsuccessful prescription, which was about error in diagnose of disease and lack of adequate knowledge about disease and drugs and interactions and adverse effect, his study was consistent with present study.

In a study by Jayadyv [10] on prescribing antibiotics and non-narcotic analgesics for pulp and periapical injuries, results showed that the most common problem is root canal therapy, which is treated by antibiotic (56.4%). In this case, selective antibiotic is Penicillin and in case of sensitivity to Erythromycin and most prescribed NSAID (nonsteroidal anti-inflammatory drugs) usually is Diclofenac, which this study is consistent with our study in terms of drugs recognition in root canal therapy.

A study by Shahab [7] was conducted for assessing the rate of emergency (ED) and adverse effect of narcotic drugs and association with systemic antibiotics. Most of the complications associated with antibiotics were allergic reactions (87.7%), half of which was related to Penicillin (36.9%) and half of it to Cephalosporin, which was consistent with our study.

Results of our study shows that awareness score about principles of prescription writing (70.8%) and drug adverse effect (57.6%) are at a good level and students in these two cases have relatively full awareness. Awareness score about drug association with disease (67.1%) and drug interactions (46.7%) are at a intermediate level and students in these two purposes have an intermediate awareness, which more efforts should be done in these cases in order to raise the knowledge level of students and general mean score of students' awareness obtained as (54.8%) and results of this study indicates that more effort and training is required for prescribing and pharmacology, we should be able to achieve prescribing without any errors by raising the quality of education and awareness level of students, so students encounter fewer problems in these regards after graduation and be able to do the best treatment for their patients and finish the treatment. At the end, it is also suggested that researchers conduct future studies with bigger sample size in different schools and cities.

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REFERENCES

1. Moura Cs, Naves Jo, Coelho EB, Lia EN. (2014). Assessment of quality of prescription by dental students. *Journal of Applied Oral Science.* ;22(3):204-8.
2. Aronson Aronson JK. (2006). A prescription for better prescribing. *British journal of clinical pharmacology.* 1;61(5):487-91.
3. Löffler C, Böhmer F, Hornung A, Lang H, Burmeister U, Podbielski A, Wollny A, Kundt G, Altiner A. (2014). Dental care resistance prevention and antibiotic prescribing modification—the cluster-randomised controlled DREAM trial. *Implementation Science.* 22;9(1):1.
4. Levy SB. (2001). Antibiotic resistance: consequences of inaction. *Clinical Infectious Diseases.* 15;33(Supplement 3):S124-9.

5. Pechere JC.(2001). Patients' interviews and misuse of antibiotics. *Clinical Infectious Diseases*. 15;33(Supplement 3):S170-3.
6. Shehab N, Patel PR, Srinivasan A, Budnitz DS. (2008). Emergency department visits for antibiotic-associated adverse events. *Clinical Infectious Diseases*. 47(6):735-43.
7. Adriaenssens N, Coenen S, Kroes AC, Versporten A, Vankerckhoven V, Muller A, Blix HS, Goossens H, Mittermayer H, Vaerenberg S, Markova B. (2011). European Surveillance of Antimicrobial Consumption (ESAC): systemic antiviral use in Europe. *Journal of antimicrobial chemotherapy*. ;66(8):1897-905.
8. Har G. (2011). *Pathways of the pulp*. 3 ed. Tehran: Shayannemodar publication.
9. Jayadev M, Karunakar P, Vishwanath B, Chinmayi SS, Siddhartha P, Chaitanya B. (2014). Knowledge and Pattern of Antibiotic and Non Narcotic Analgesic Prescription for Pulpal and Periapical Pathologies-A Survey among Dentists. *Journal of clinical and diagnostic research: JCDR*. ;8(7):ZC10.
10. Nezafati, S. (2009). Checking the quality of dental care services in Tabriz prescriptions in the second half of 1994. *Medical Journal of Tabriz University of Medical Sciences*. 31: 101-104.

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